Appendix L

Request to Perform Leak Testing and Sample Analysis

Information to be Provided Supporting Request

- Identify the individual who will make the analysis and provide his or her qualifications to make quantitative measurements of radioactivity

- Commit to performing leak testing at the frequency specified in the appropriate SSD Registration Certificate.

- Specify how and where test samples will be taken on the gauge. Describe materials used and methods of handling samples to prevent or minimize exposure to personnel.

- Specify the type of instrument(s) that will be used for measurement, the counting efficiency, and minimum levels of detection for each radionuclide to be measured.

  Note: An instrument capable of making quantitative measurements should be used; hand-held survey meters will not normally be considered adequate for measurements.

- Specify the standard sources used to calibrate the instrument; for each, specify the radionuclide, quantity, accuracy, and traceability to primary radiation standards.

  Note: Accuracy of standards should be within ±5% of the stated value and traceable to a primary radiation standard such as those maintained by the National Institutes of Standards and Technology (NIST).

- Include a sample calculation for conversion of the measurement data to becquerels (or microcuries).

- Provide instructions on actions to take and persons to be notified if sources are found to be leaking.

- All gauge licensees are required to retained leak test records for 3 years for inspection purposes.

Model Procedure for Performing Leak Testing and Analysis

- For each source to be tested, list identifying information such as gauge serial number, radionuclide, activity.
- If available, use a survey meter to monitor exposure.
- Prepare a separate wipe sample (e.g., cotton swab or filter paper) for each source.
- Number each wipe to correlate with identifying information for each source.
- Wipe the most accessible area where contamination would accumulate if the sealed source were leaking.

- Using the instrument identified to, and approved by the Agency, count the record background count rate.
- Check the instrument's counting efficiency using standard source of the same radionuclide as the source being tested or one with similar energy characteristics. Calculate efficiency.
- Count each wipe sample; determine net count rate.
- For each sample, calculate and record estimated activity in becquerels (or microcuries).
- Sign and date the list of sources, data and calculations.
- If the wipe test activity is 185 becquerels (0.005 mcirocurie) or greater, notify the RSO, so that the source can be withdrawn from use and disposed of properly. Also notify the Agency.

Leak Test Records

The records will include the following information:

- Each source's manufacturer name, model and serial number
- The identity of each sealed source radionuclide and its estimated activity, expressed in microcuries (or becquerels);
- The measured activity of each leak test sample, in microcuries (or Bq);
- The date the sample was collected; and
- The signature of the Radiation Safety Officer or designee.